Vertex Accuracy

The vertex computed from emulsion information is analyzed for its precision.

Using emulsion points $(u,v,z)_{i=1,2,3,4}$ near the vertex for the "perfect" event set, one can compute the distance of closest approach (*dca*) for pairs of tracks.

For short (≤ 4 points) segments:

$$\sigma_{u,v} \sim 0.25 \mu m$$

The accuracy of the vertex in the *u*-*v* plane is typically

$$\delta r \sim 0.7/\sqrt{N}\ \mu m$$

where N is the number of high-momentum tracks used in the primary vertex.

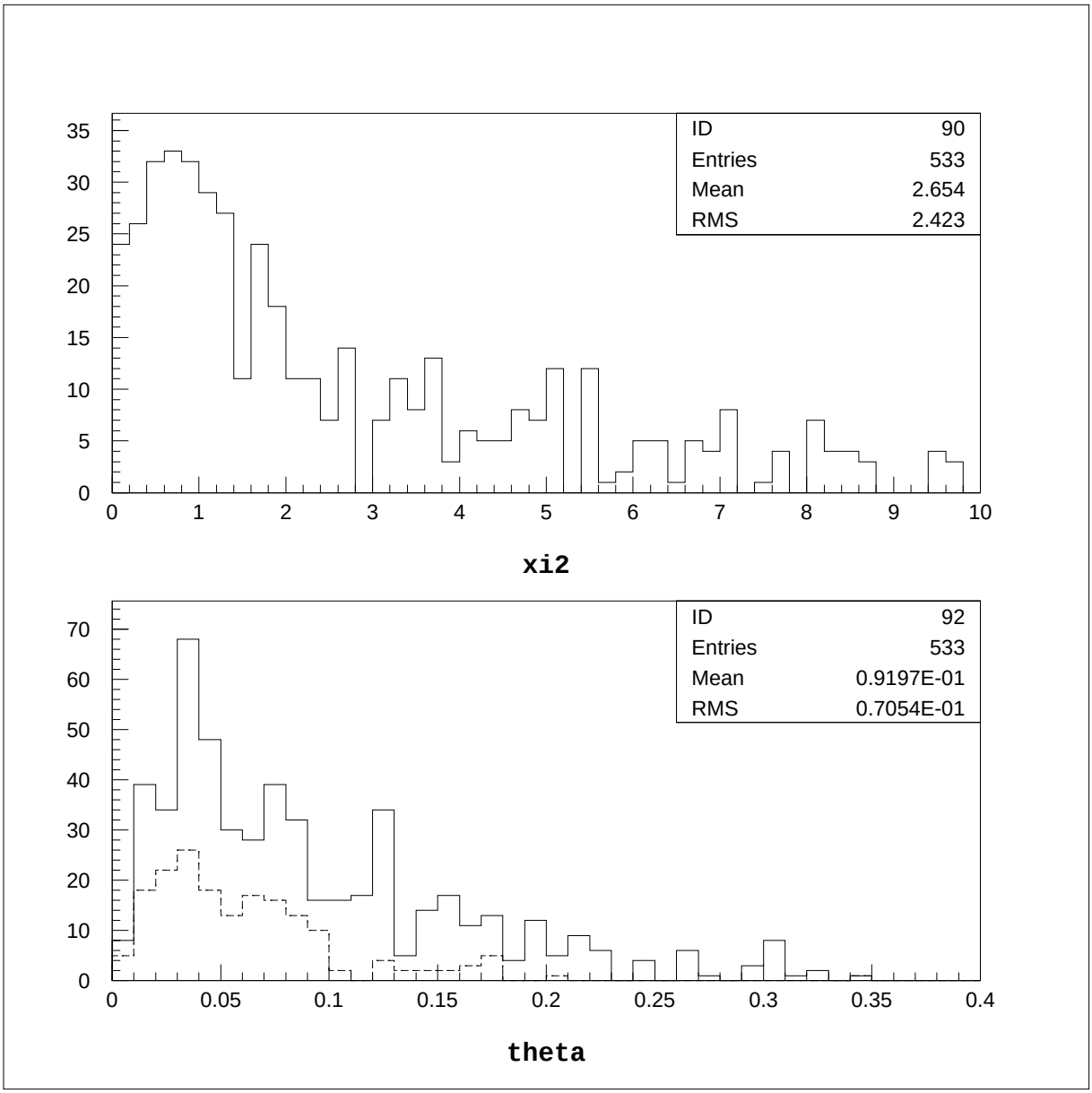

Figure 1. The χ^2 (*top*) and the total angle for emulsion tracks used in this analysis.

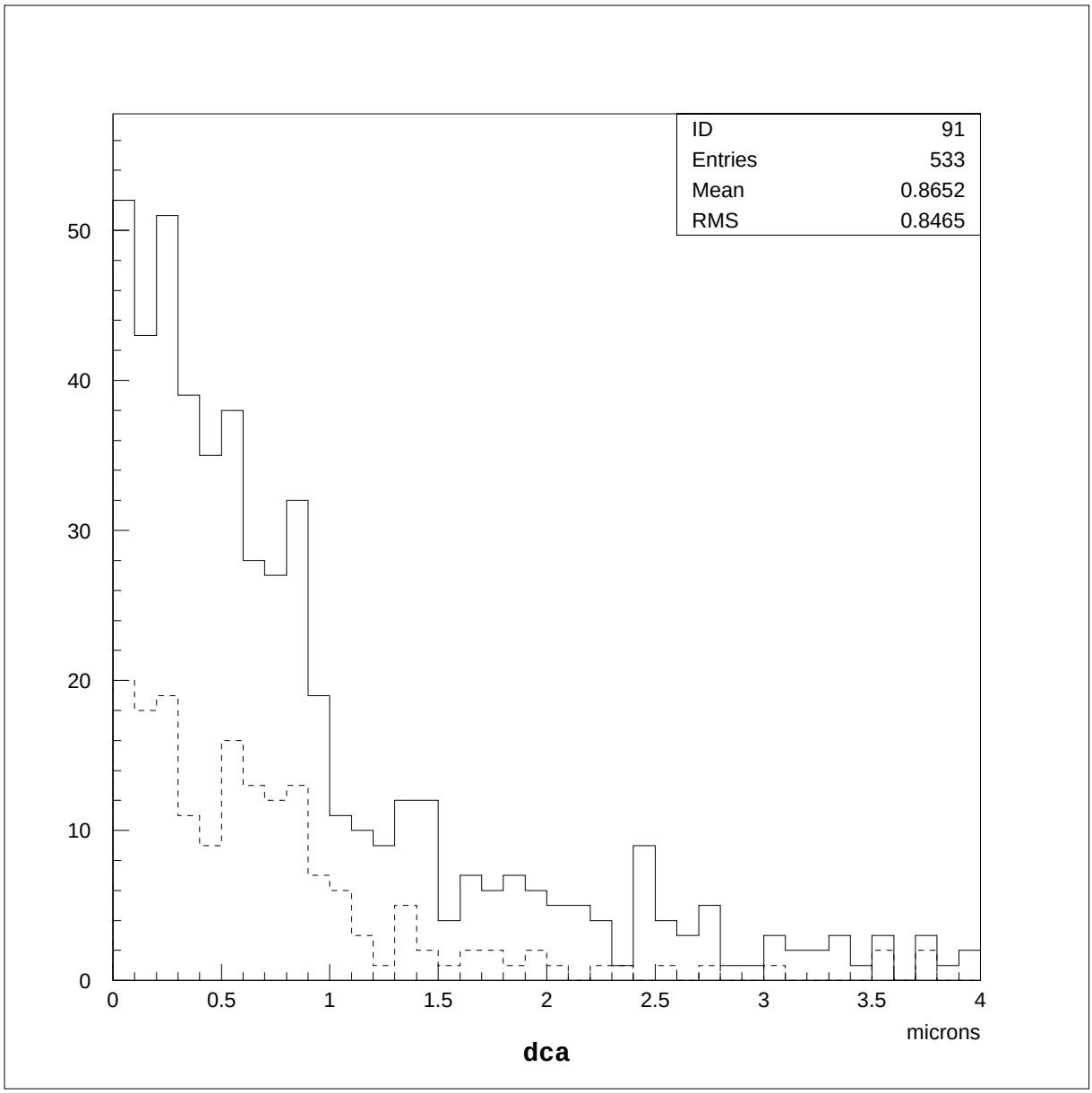

Figure 2. The distance of closest approach between the two-track combinations for this data. The solid histogram is for *all* combinations, and the broken histogram is for tracks with χ^2 /*d.f.* <

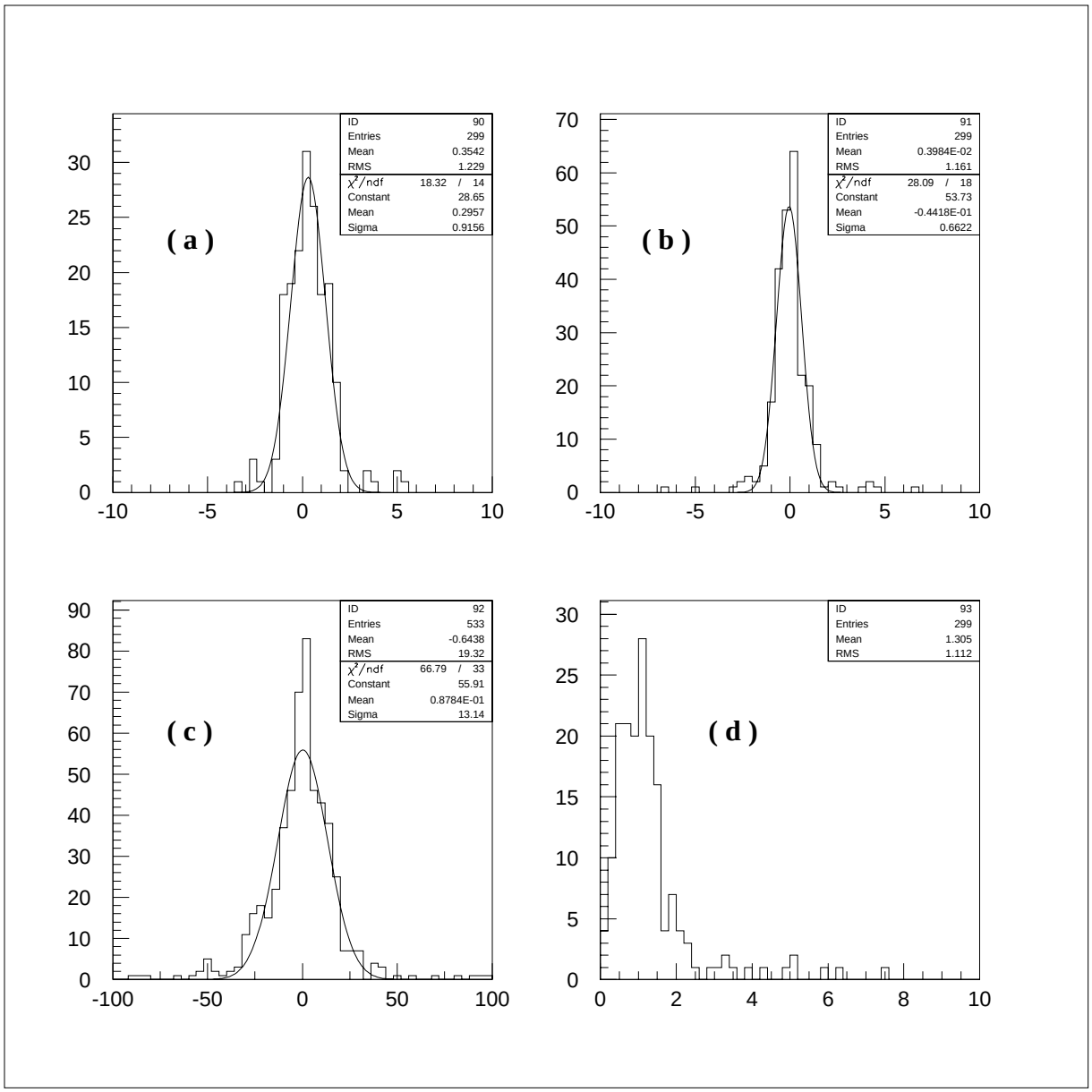

Figure 3. Comparisons of the results from the *dca* analysis and the given (assumed) vertex position, as given in the *ecv* files:
(a) δu
(b) δv
(c) δz
(d) δr